ABSTRACT

The invention relates to a mixing device for mixing a gaseous stream of a fuel and an oxidant that has a cylindrical mixing chamber, means for injecting a gaseous stream of the fuel tangentially along the inner surface of the wall of the mixing chamber, and means for injecting a stream of the oxidant axially along the central longitudinal axis of the mixing chamber, wherein the diameter of the mixing chamber and the dimensions and location of the means for injecting the fuel and the oxidant are such that the tangentially injected stream of the fuel forms a wall jet around the axially injected stream of the oxidant without impinging upon the other stream. The invention further relates to a reactor for the partial oxidation of a hydrocarbonaceous fuel containing the mixing device and to a process for the catalytic partial oxidation of a hydrocarbonaceous fuel using the mixing device.